

REMARKS

This amendment is in response to an Office Action mailed on November 5, 2003. By this amendment, claims 1, 2 and 10 have been amended, claim 21 has been canceled, and no new claims have been added. Thus, claims 1-20 are pending in this application. Claim 1 has been allowed if rewritten to overcome a stated ambiguity rejection made under 35 USC 112, and claims 2 through 20 have been rejected for the reasons discussed below.

Reconsideration and reexamination of the application and pending claims 1 through 20 are respectfully requested.

In general, Applicant has endeavored to place claims 1 through 20 in the application in condition for allowance and, as amended, it is believed that claims 1 through 20 in the application are now in condition for allowance and allowance of same is respectfully requested.

CLAIMS

The claims have been amended to more clearly claim the subject matter of the invention and to point out with greater specificity various features of the invention now explicitly claimed and recited in the claims due to the amendments herein as explained in more detail below. The amendments to the claims are clearly supported by the original specification and drawings, and therefore do not add new matter. Claim 21 has been canceled as being duplicative of claim 11.

35 USC 112 REJECTIONS

The Examiner rejected claims 1-2, 4-10 and 12-21 under 35 USC 112, second paragraph, as being indefinite in failing to point out what is included or excluded by the claim language, i.e.,

in the subject claims the phrase, "said video based coordinate measuring system" is argued not to be clear. The Examiner correctly notes that the Applicant means by this phrase the suggested phrase, "measuring the position of the video based on a coordinate measuring system."

Applicant thanks the Examiner for suggesting this clarifying language. Each of these claims has been amended by amending the independent claims 1, 2 and 10 (and consequently claims depending thereon) to incorporate this suggested phrasing to specifically point out what structure is included and excluded by the claim language. As the subject claims are now amended, each is now clarified to overcome the Examiner's stated basis for his rejection of the claims. Due to the above amendments, the Examiner's 112 rejections are moot and withdrawal of the rejections is respectfully requested. Further, as claim 1 has already been noted as being allowable with this amendment, claim 1 should now be passed to allowance.

35 USC 103 REJECTIONS

Claims 2 to 21 were rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 5,712,706 to Castore et al. ("Castore") in view of pending published patent application 2001/0005204 Matsumoto et al. ("Matsumoto"). The Examiner admits that Castore fails to provide explicitly at least three elements claimed by Applicant, i.e., a video monitor and display, a camera based on a coordinate measuring system, and a carriage which can be moved vertically. Matsumoto is relied upon to provide the last of these missing claimed elements. The first two are considered to be "obvious" modifications to Castore.

With respect to the missing video monitor and display, and the carriage which can be moved vertically cited claims, the Examiner argues that it would be obvious to modify Castore's

system with known movable systems to provide Applicant's claimed structure. To the extent that the Examiner's rejections may be applied to the cited claims, as amended, they are respectfully traversed.

Independent claims 2 and 10, from which the remaining cited claims depend, are directed to a precision video gauging machine system for measuring a workpiece having: a base; a carriage for supporting the workpiece to be measured that is vertically movable with respect to the base; a column, horizontally movable with respect to the base; and, a video based coordinate measuring system mounted on the column. (Claim structural language common to both independent claims 2 and 10 and incorporated into the claims dependent thereon.)

Applicant's claims have a structure that is fundamentally distinct from that of Castore for at least the following reasons outlined below and are therefore patentable thereover.

Castore is directed to a laser scanning method and apparatus for rapid precision measurement of thread form that utilizes a non-contact laser based sensor that is guided by a precision mechanical system to scan a thread form to produce a digitally useful image of the thread form. The mechanical system includes a laser based sensor movable in a number of axes of freedom and a workpiece mount movable in a complementary series of axes of freedom. No claim is made to the apparatus disclosed in the Castore reference.

The Examiner is correct in noting that Castore does not disclose a vertically moving carriage as is specifically taught and claimed by Applicant as an essential element of his invention. The specification on page 1, lines 7 et seq. states that the present invention "pertains to a precision video gauging machine for measuring relatively small or relatively lightweight workpieces that are *mounted for movement in a vertical relationship to a base element while*

an optical measuring system is being operated in a horizontal relationship to the base element.” (Emphasis added)

In fact, it is this very construction of vertically mounting the workpiece and horizontally operating the optical measuring system that is being claimed by Applicant that enables Applicant's invention to overcome the problems of the prior art noted in Applicant's specification beginning on page 3, line 3 et seq. Namely, that a workpiece mounted on a horizontally movable inspection table: requires a workpiece supporting table capable of not only supporting the weight of the workpiece but one that can allow for illumination of the workpiece through the table, thereby limiting the weight of the workpiece that can be measured. Next, stress points from uneven weight distribution in the supporting inspection table caused by the weight of the workpiece lying horizontally on the inspection table, cause inaccuracies in measurement by distorting the illuminating light passing through the supporting table. The Castore apparatus has no suggestion or disclosure of allowing vertical movement of its workpiece as Castore has no incentive for vertical movement of its workpiece since the problems caused by the supporting light tables of the prior art over which Applicant's invention is a clear improvement are absent in the Castore apparatus which does not include a workpiece supporting table at all.

Accordingly, it is logical that the Castore disclosed apparatus fails to provide for vertical movement of the workpiece to be imaged as is specifically claimed by Applicant as it is neither needed nor wanted for its successful operation. The Castore workpiece is held in a yoke member capable only of rotational movement about a vertical axis, but no suggestion is made of linear translational movement along the vertical axis. The only suggestion of additional movement of

the workpiece and its yoke is found at column 10, lines 56-58 where it is stated that,

The part is slowly moved in a path that is dependent on its geometry. For example, a gear would require slow movement in the *horizontal* direction. (Emphasis added.)

There is no suggestion of moving the workpiece or its yoke along a vertical axis as claimed by Applicant due to the fact that the laser sensing apparatus is capable of movement in a vertical axis thereby making such movement of the workpiece unnecessary and overly complex for its stated purposes.

The other portions of Castore cited also fail to provide explicitly or to even suggest such vertical movement of the workpiece. Specifically, at column 5, lines 3-8, Castore states

In the operation of this preferred embodiment of the invention, the laser distance measuring sensor scans across the threaded surface 110 by moving the part 112 relative to the laser distance measuring device 100. In other alternate embodiments of the invention the part 112 or the laser distance measuring apparatus 100, or both, can move.

There is no hint or suggestion here of moving the workpiece (part 112) in a vertical direction. Stating merely that either part can move is insufficient to provide for the clear structure being claimed by Applicant requiring vertical movement of the workpiece to meet specific problems found in existing horizontal movement optical comparators. There is no stated need to move the workpiece of Castore in the vertical direction found anywhere in the specification or disclosure.

Likewise at column 5, lines 27-33, Castore provides:

In yet another alternative embodiment of the invention a further additional rotary motion stage 122 which provides an additional degree of freedom during part 112 scanning may be included. The further additional rotary motion stage 122 is

attached to the part rotary motion stage 120 in this alternative embodiment of the invention.

Thus, Castore suggests only that an additional degree of rotary motion along an axis perpendicular the vertical axis be given the workpiece. No mention is made of a movement of the workpiece in along a vertical translation axis as provided for and claimed by Applicant.

Thus, no wording, hint, suggestion or need for vertical movement of the workpiece is found in or supportable by reference to Castore making it not obvious to add a vertical movable stage except with prior knowledge of Applicant's novel structure. The real suggestion to modify Castore to add a vertical movable stage for its workpiece comes from Applicant's claims and the Examiner is impermissibly using hindsight to reconstruct the claimed invention.

In In re Dembiczak, the applicant was claiming a large trash bag made of orange plastic and decorated with lines and facial features, so that the filled bag resembled a jack-o'-lantern. 50 U.S.P.Q.2d 1614, 1615 (Fed.Cir. 1999). The cited art was conventional trash bags and two Teacher's handbooks that included children's craft projects on how to decorate crepe paper jack-o'-lanterns or paper bag pumpkins. (*Id.* At 1615-1616). The court stated:

In the case of less technologically complex invention, where the very ease with which the invention can be understood may prompt one to fall victim to the insidious effect of a hindsight syndrome wherein **that which only the inventor taught is used against its teaching.....**

(*Id.* At 1617). (emphasis added). The court reversed the obviousness rejection because of no evidence of a suggestion to combine these references. The court further stated, "the showing [of evidence of suggestion or motivation to combine] must be **clear and particular.**" (*Id.*). (emphasis added).

In the present case, although the Examiner found vague statements in the reference to add rotary motion to the workpiece mount, Applicant argues that this evidence lacks the clarity and particularity necessary to suggest the Examiner's assertion that it would be obvious to add vertical motion of the workpiece as well without hindsight based upon Applicant's claimed structure and disclosure.

The lack of any existing prior art showing the structure being claimed by Applicant having a vertically movable inspection table supporting the workpiece to be measured with a horizontally movable video measuring system that overcomes existing limitations and problems in the art, is clear evidence that such arrangement is indeed non-obvious and novel and not merely an extension brought about by "only routine skill in the art."

The Matsumoto reference adds nothing to this basic failure on the part of the Castore reference to provide for Applicant's claimed structure.

Remaining claims 3-9, 11-20 are dependent on allowable claims 2 and 10, respectively. As a result, these dependent claims contain all of the limitations of the allowable base claims as shown above. These dependent claims are therefore allowable at least by virtue of their dependence on allowable base claims. In addition, these dependent claims are allowable for the totality of the features claimed therein, based on the new combinations formed with the added limitations.

CONCLUSION

In view of the foregoing, it is respectfully submitted that all of the remaining claims 2-20 like allowed amended claim 1, also patentably distinguish over all of the art of record, taken singly or in any combination under 35 USC 102 as well as under 35 USC 103. Entry of the Amendment, withdrawal of the objections and rejections, allowance of claims 2-20, and the passing of the application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is encouraged to telephone or email the undersigned at the telephone number or email address given below for prompt action.

If an extension of time is due in connection with the filing of this submission, such extension is hereby requested.

Respectfully submitted,

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